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ABSTRACT

In order to make intelligent decisions concerning the implementation of reflectively based teacher education programs, educators need to develop a richer, more precise empirical knowledge of the cognitive abilities and orientations of prospective social studies teachers. Research suggesting inferior intellectual capabilities of the faculty and students in schools of education has focused on central tendency while neglecting range, which indicates that higher ability students are attracted to teaching. This investigation used the Harrison Bramson Inquiry Modes Questionnaire to measure the cognitive styles of prospective teachers. Five preferred styles were measured: synthesist, idealist, pragmatist, analyst, and realist. Attitudes toward educational practice were measured using the Education Scale along two dimensions: traditionalism and progressivism. Questionnaires were administered to 132 secondary education majors in social studies, English, mathematics, and science. There were no great differences among social studies majors and those in other subject fields; however, there were differences between higher and lower achieving social studies majors. Additionally, students with a progressive view of education scored higher on synthesism. In general, respondents showed no particular proclivity for specific modes of inquiry, suggesting that future research is needed. A 12-item bibliography, three figures, and four tables are included. (Author/AS)

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Preferred Modes of Inquiry Among Prospective Social Studies Teachers:

The Implications for Preparing Reflective Practitioners

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The emergence of reflective-based teacher education programs concomitant with the new wave of interest in critical thinking encourages some theorists to believe that improvement in the quality of social studies instruction is in the offing. However, educators conversant with the research on the psychological and social mien of teacher education are less sanguine. Pointing to the evidence indicating a lack of intellectual rigor in schools of education, they are skeptical concerning the prospects of engendering a new generation of reflective practitioners through the reform of existing teacher training programs .

Supporting the skeptics is a body of evidence indicating that critical thinking and conceptual analysis are not the hallmarks of teacher education. To summarize, the research indicates that the objectives and instructional discourse of curriculum and instruction courses revolve around the excessively concrete and the tell-me/show-me nature of classroom dialogue made salient by the general absence of more profound and thoughtful interactions on substantive issues (Little and Lanier, 1986).

The pedestrian intellectual climate which is said to pervade teacher education has been attributed to the inferior intellectual capacities of the faculty and students who populate schools of education. With reference to faculty, Ducharme & Agne (1982) reported that teacher educators, perhaps due to their prior professional role socialization in elementary and secondary schools, experience difficulty in adjusting to the intellectual norms and research expectations of academe. Other researchers have uncovered a lack of probing thought and analysis among those who teach methods courses and practice teaching (Ducharme & Agne, 1982; Lanier & Little, 1986).

Concerning the intellectual capacities of students, the general impression that persons pursuing careers in teaching are academically weak continues to be supported by the research. Prospective teachers come predominantly from the lowest quintiles of academic talent, exhibit a lower propensity for probing thought, and lack cognitive flexibility. Not surprisingly, students of

teaching are said to be comfortable with, in fact to demand, the concrete tell me/show-me-how-to-do-it approaches that characterize instruction in schools of education. (Lanier & Little, 1986).

Novices'Intellectual Capacities and the Prospects for Reflectively-based Teacher Education

These rather dismal appraisals of the intellectual capacities of prospective teachers must be put into perspective lest teacher social studies educators become unnecessarily discouraged about the prospects for engendering a new generation of reflectively-oriented practitioners. First, the existing research on the academic abilities of intending teachers gives excessive attention to measures of central tendency and insufficient attention to the range. Based solely on the evidence of average test scores, it is erroneous to state that teaching fails to attract those with high ability. Indeed, teacher education programs enroll approximately the same percentage of higher ability students as other professional schools (Little & Lanier, 1986). Moreover, several recent studies have questioned the belief that students of teaching are academically inferior. For example, Matczynski, et. a.l., (1988) found that secondary teacher education graduates achieved as well as (or in some cases better) than their non-teacher education counterparts on GPA in both their general education courses and in the arts and science courses in their secondary education major.

Germane to this study is the fact that researchers have given little attention to a wider range of novices' cognitive orientations and abilities. In order to make intelligent decisions concerning the implementation of reflectively-based programs, teacher educators will need to develop a richer, more precise empirical knowledge of the cognitive abilities and orientations of prospective teachers.

Cognitive Style and Reflective Teaching

Taking as its major premise that "what teachers do is directed in no small measure by what they think" research on teacher thinking aims at broadening and deepening understanding of the complexity of teaching, of what teachers know, of what methods of inquiry and reflection that

teachers employ (Clark & Lampert, 1986). To accomplish this task, studies have employed the Harrison Bramson Inquiry Modes Questionnaire (I_nQ) which has its epistemelogical roots in the work of C. West Churchman (Harrison & Bramson, 1982). In his Design of Inquiring Systems, Churchman (1971) articulated five basic typologies of thought from which Western man has sought to apprehend the world and solve problems (Figure 2). Operationalized and named "inquiry modes" by Mitroff (1974) each of the five modes is characterized by a set of attributes, strengths, and weaknesses as depicted in Figure 1. A description of the I_nQ, which was used to measure the cognitive styles of the prospective social studies teachers in this investigation, is provided below. Figure 3 translates the five modes of thought into typologies of teaching.

Insert Figures 1, 2 and 3 about here

This research was conducted for the purpose of determining the preferred modes of inquiry among prospective social studies teachers. Application of the results to a secondary social studies methods course will be discussed following a description of the methodology and findings for the study.

Research Questions

1. What are the preferred modes of inquiry of prospective social studies teachers?
2. How do they compare with the inquiry profiles for students preparing to teach in other subject fields?
3. Are prospective social studies teachers' inquiry profiles related to their level of academic achievement (QPA)?
4. Are prospective social studies teachers inquiry profiles related to their attitudes toward educational practice (progressive v. traditional)?

5. How closely do prospective teachers' inquiry profiles correspond with the models of reflective teaching promoted in the social studies literature and in methods courses?

Methodology

Styles of inquiry were measured through the Inquiry Modes Questionnaire (I_nQ) referred to earlier (Harrison and Bramson, 1982). The instrument measures five preferred styles of thought: synthesist, idealist, pragmatist, analyst and realist (see Figures 1 and 2). Assessment is accomplished by calling for the respondent to rank order a sequence of statements with reference to a hypothetical situation such as, "When there is conflict between people over ideas I tend to favor the side that." Each situation is followed by five possible courses of action which the respondent ranks as most typical of their behavior or least typical. The instrument has been widely used and is reported to have good validity and reliability (Bruvold, et. al., 1983).

Attitudes toward educational practice were measured through the Education Scale (Kerlinger & Kaya, 1959). The scale measures two dimensions: traditionalism and progressivism. Traditionalism is defined as accession to such beliefs as: the curriculum should consist of an orderly arrangement of subjects that represent the best of our cultural heritage, the backbone of the curriculum is subject matter, the curriculum consists of subject matter to be learned and skills to be acquired, learning is essentially a process of increasing one's store of information about the various fields of knowledge. Progressivism is measured by the respondent's agreement with beliefs such as: no subject is more important than the personalities of the pupils, students should be encouraged to study and criticize our own and others' economic systems and practices, moral standards should not just be accepted, they must be examined and tested, students should be allowed more freedom in the execution of learning activities. The Education Scale is reported to have satisfactory levels of validity and reliability (Shaw and Wright, 1967).

The questionnaires were administered to 132 secondary education majors enrolled in the undergraduate teacher education programs at two large public universities in the Southeastern United States--60 were majoring in social studies; 30 in English; 21 in mathematics; and 18 in

science[1]. The students were asked to report their quality point average (QPA) and gender. Mean scores, ranges and standard deviations were used to report inquiry profiles for the comparison groups. Percentages showing preference (60 and above) and disregard (48 and below) for each mode of inquiry were also reported to provide a more accurate representation of the range of preference than would be indicated by reporting mean scores alone[2].

Findings

The findings reported in Table 1 indicate a relatively flat inquiry profile for social studies majors. The mean score for the synthesist mode borders on moderate disregard with 12% of the students showing a preference and 43% a disregard for that style of thought. The greater variance of scores on the synthesis scale (SD = 8.62) indicates a wider dispersion of scores compared to the other modes of inquiry[3].

Insert Table 1 about here

The findings reported in Table 2 show that the inquiry profile of social studies majors did not differ markedly from the profiles of the students majoring in other subject fields. Mathematics and science majors showed somewhat higher preferences for the analytical and realist (empirical) modes and conversely, a stronger disregard for the synthesism. Although social studies majors border on moderate disregard for synthesism, they showed a higher score on that mode than did their counterparts in other teaching fields.

Insert Table 2 about here

The findings in Table 3 indicate that higher and lower achieving social studies majors had similar profiles except that higher achieving students did exhibit a somewhat stronger preference

for the synthesist and analytical modes while lower achieving students showed a higher preference for the realist mode. Nearly half (44%) of the lower achieving students and 36% of the higher achieving group showed a disregard for synthesist thinking, considerably higher than for the other modes. Also higher ability students showed a stronger preference for analytical thought (36%) and a weaker preference for realistic thinking than lower achieving students.

Insert Table 3 about here

The findings reported in Table 4 show that students who have a progressive view of educational practice have a moderately higher modal score on synthesism and a lower score on realism than students with traditional views. Progressives showed a higher preference (37% v. 13%) and a lower regard (10% v. 33%) for the synthesist mode of thinking.

Insert Table 4 about here

Discussion

Cognitive flexibility is thought to be an important attribute for those who aspire to reflective teaching (Shulman, 1986). This study unearthed no extreme affinity or aversion for any of the styles of thought implying that cognitive adaptability is a quality generally present in this group of prospective social studies teachers. Consistent with Harrison and Bramson's (1982) interpretation of a flat inquiry profile, it may be inferred that these novices would experience little or no difficulty in working with a variety of inquiry-oriented teaching strategies.

From the perspective of those who espouse particular models of teaching--i.e., structured inquiry, dialogic thought, jurisprudential inquiry, moral development, generalization-based teaching, reflective teaching--the even neutrality with which novices regarded all of the modes of thought

may be less encouraging. Although respondents showed no antipathy for any of the modes of inquiry, neither did they show a proclivity for the styles endemic to these instructional paradigms. It is possible to interpret this result as indicating a lack of genuine affinity for the mainstream inquiry paradigms advocated in the literature.

Novices' equivalent preference for pragmatism vis-a-vis their preferences for more penetrating styles of thought (synthesist, idealist, analyst and realist), suggests a susceptibility to atheoretical approaches to instruction. Based on his assessment of the wisdom of practice research, Shulman (1986) observed that "better" teachers are able to describe their teaching in terms of well-articulated, reasoned theories of teaching. A pragmatist orientation signifies that teachers have no single, unified theory of teaching--they decide upon the use of methods and materials with reference to their "workability" rather than on the higher order criteria associated with reflective teaching. Tempering this sober observation is the fact that novices did not over subscribe to pragmatism vis-a-vis the other more substantive modes of inquiry suggesting that exposure to reflectively-based programs would very likely modify this moderate acclivity for mindlessness.

That there were a substantial number of novices who registered disregard (43%) and a small number who showed a preference (12%) for the synthesist mode of thought may concern those theorists who advocate teaching through conflicting interpretations, controversial issues and interpretive analysis. The fact that lower achieving students and traditionalists evidenced lower preferences for synthesist-oriented inquiry than their brighter, more progressive peers suggests that teacher educators need to pay closer attention the ability levels and ideological orientations of novices when exposing them to instructional paradigms for which certain modes of thought are endemic. Moreover, the greater variance in affinity for the synthesis mode suggests that methods instructors should be careful not to underestimate the extent of the variation in the affinity for teaching about controversial issues, divergent opinions, and conflicting interpretations among their students. In light of the ineffectiveness of teacher education programs in socializing beginning teachers to implement critical thinking strategies in the past, further investigation into prospective teachers' aversion and variance of response to synthesist-based instructional paradigms is warranted.

Also of relevance to social studies methods instruction is the finding that lower-achieving students appear to be more inclined toward realist-oriented, concretely structured models of teaching. This suggests that additional thought may need to be given to weaning less academically able novices from their dependence and their preference for structured, show-me/tell-me-how-to-do-it approaches to pedagogy. It also appears that a greater effort will be required to get them to implement synthesist and analytical-oriented instructional strategies.

Application of the Findings to the Methods Course

The researcher has administered the I_nQ as part of a pre-assessment instrument measuring students attitudes toward teaching social studies. The students score the instrument and develop their own inquiry profiles. A discussion of the meaning of the profiles is conducted at the beginning of the course. As the various instructional strategies are introduced, an effort is made to get students to reflect on the relationship between their preferred modes of thought and the epistimelogical and ideological premises underlying the paradigm under consideration. The intent is that students will become more aware of the correspondence between the models advocated in the literature and their own preferred styles of thought[4].

Recently the researcher developed a reflectively-based social studies methods course in which the students were required to plan and teach concept or generalization-based lessons in practicum settings (Ferguson, 1989). In discussing the planning and implementation of their practicum lessons attention was given to the selection of instructional strategies vis-a-vis their inquiry modes profiles. Two revisions of the course are suggested by the findings of this study. First, consideration needs to be given to providing a broader range of possible inquiry strategies for the practicum experiences. Students would then be able choose reflective strategies that are more consonant with their particular inquiry profiles. Second, providing additional practicum experiences would permit students to experiment with strategies engendering modes of inquiry for which they do not have a strong proclivity. This would enable them to expand their instructional repertoire beyond their own natural preferences.

In closing it is important to place this study in perspective. No attempt was made to assess novices' critical thinking abilities, only their preferences for different styles of inquiry. Future research will need to assess novices' capacities for reflective thinking as well as their cognitive orientations if teacher education programs are to make a meaningful contribution to the improvement of social studies instruction.

Notes

[1]The I_nQ is an ipsative measure and cannot be subjected to the customary tests for statistical significance.

[2]The researcher wishes to thank Dr. Dorothy Hendricks, College of Education, The University of Tennessee at Knoxville for her assistance in collecting the data.

[3]Harrison and Barmson (1982) have reported that half of the general population relies on a single style of thinking, about 35% rely on a combination of two modes of thought, and only 2% have shown a preference for three styles in combination (scores of 60 or higher on each mode).

[4]The researcher qua methods instructor's inquiry profile consisted of the following scores: Synthesist (71), Idealist, (44) Pragmatist (39), Analyst (66) and Realist (50)--indicating a significant deviation in pattern from the flat profile for the prospective teachers qua methods students shown in Table 1.

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Figure 1. MODES OF INQUIRY

Orientation	I SYNTHESIST	II IDEALIST	III PRAGMATIST	IV ANALYST	V REALIST
Characterized by:	Integrative view Sees likeness in apparent unlikes Seeks conflict & synthesis Interested in change Speculative Data meaningless w/o interpretation	Assimilative or holistic view Broad range of views welcomed Seeks ideal solutions Interested in values Receptive Data & theory of equal value	Eclectic view "Whatever works" Seeks shortest route to payoff Interested in innovation Adaptive Any data or theory that gets us there	Formal logic & deduction Seeks "one best way" Seeks models & formulas Interested in "scientific" solutions Prescriptive Theory and method over data	Empirical view & induction Relies on "facts" & expert opinion Seeks solutions that meet current needs Interested in concrete results Corrective Data over theory
Strengths:	Focus on underlying assumptions Points out abstract conceptual aspects Good at preventing over-agreement Best in controversial, conflict-laden situations Provides debate & creativity	Focus on process, relationships Points out values & aspirations Good at articulating goals Best in unstructured, value-laden situations Provides broad view, goals & standards	Focus on payoff Points out tactics & strategies Good at identifying impacts Best in complex, incremental situations Provides experiment & innovation	Focus on method & plan Points out data & details Good at model-building & planning Best in structured, calculatable situations Provides stability & structure	Focus on facts & results Points out realities & resources Good at simplifying, "cutting through" Best in well-defined, objective situations Provides drive & momentum
Liabilities:	May screen out agreement May seek conflict unnecessarily May try too hard for change & newness May theorize excessively Can appear uncommitted	May screen out "hard" data May delay from too many choices May try too hard for "perfect" solutions May overlook details Can appear overly sentimental	May screen out long-range aspects May rush too quickly to payoff May try too hard for expediency May rely too much on what "sells" Can appear over-compromising	May screen out values & subjectives May over-plan, over-analyze May try too hard for predictability May be inflexible, overly cautious Can appear tunnel-visioned	May screen out disagreement May rush to over-simplified solutions May try too hard for consensus & immediate response May over-emphasize perceived "facts" Can appear too results-oriented

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Figure 2. Sources of Thought for the I_nQ Modes

Style of Thinking	*Churchman, Inquiry Mode ascribed to:*	*Central Idea or Philosophy*	*Buchler, Methodology ascribed to:*	*Central Idea or Philosophy*
Synthesist	Hegel	Dialectic, Phenomenology	Whitehead	Process Philosophy
Idealist	Kant	Philosophical Idealism	S. T. Coleridge	Neoplatonic Transcendentalism
Pragmatist	E. A. Singer	Philosophical Pragmatism	Dewey	Pragmatism, Social Experiment
Analyst	Leibniz	Symbolic Logic	Descartes	Scientific Method
Realist	Locke	Empiricism	Bentham	Utilitarianism

Figure 3. Modes of Inquiry and Approaches to Teaching Social Studies

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The Synthesist. Views the knowledge of history and the social sciences as interpretive rather then factual. Challenges students to look for disagreement, conflict, contradictory views. Introduces controversial issues, divergent opinions, differences in interpretation. Is not interested in bringing the class to a consensus. Likes to challenge students who think they agree. Encourages students to try to combine conflicting ides and speculate, what if.... Sees the world as changing rather than static. Interested in promoting creative rather than pat solutions to problems. Values intuitive over analytical thought.

The Idealist. Believes that students need to understand what is good for people and for society as a whole. Has a strong sense of what is right and wrong. Sees moral and values education as the major objective for the social studies. Is convinced that students will come to appreciate how the right values and moral standards apply once they have a grasp of the circumstances. Attempts to bring students to a consensus, sees controversy and conflict as counterproductive to achieving that goal. Sets high standards for achievement. Has an aversion for highly structured, sequential approaches to teaching. Does not consider the logic or structure of an argument as the main criteria for determining the worth of students' ideas. Values intuitive over analytical thought.

The Pragmatist. Is mainly concerned with the "workability" of teaching methods in the practical sense of achieving a rather broad array of immediate objectives. Has no single, unified theory of teaching.Experiments with a wide variety of teaching techniques and materials. Uses the materials at hand, is flexible, adaptable. Learning activities are not sequenced or interrelated. Immediate goals are of more concern than long range objectives.

The Analyst. Prefers a thoroughly-planned, highly structured, sequential, logical approach to teaching. Teaches according to formula. Expects students to be methodical, logical, analytical. Views history and human behavior as ordered, logical, rational, and predictable. Expects students to proceed according a method, a formula, a set of procedures or a system of inquiry. Has high regard for scientific procedures in examining the human condition. May be more attentive to the method the students follow than the particular purpose for which they are using it. Prefers analytical thought, disdains intuitive approaches.

The Realist. Takes a highly empirical, concrete approach to the teaching of history and social science. Believes students should come to understand the reality of history and the human condition. Expects students to take a scientific approach, be objective, stick to the facts. They must be careful to resist interpretation, subjectivity, inference, and intuition. Urges students to come to agreement on the basis of the empirical evidence. The facts speak for themselves, inference and interpretation lead to misunderstanding. Prefers not to experiment with new teaching methods once a successful formula has been found. Find a way, use it.

Table 1. Inquiry Modes Profile for Social Studies Majors

	Synthesist	Idealist	Pragmatist	Analyst	Realist
Mean	49.90	55.00	53.62	56.07	55.62
Minimum	31	44	35	44	34
Maximum	68	66	67	72	68
Standard Deviation	8.62	5.67	6.04	7.11	7.37
% Showing Preference (Score of 60 or above)	12%	20%	17%	32%	28%
% Showing Disregard (Score of 48 or below)	43%	13%	17%	10%	12%

Key to I_aQ scores:

72 and above	Very strong preference: use that style in virtually all situations
66 to 71	Strong preference: use that style consistently in most situations
60 to 65	Moderate Preference: tendency to use that style more than others
49 to 59	Neutral: neither preference or disregard
43 to 48	Moderate disregard: infrequent use of that style in favor of others
37 to 42	Strong Disregard: avoidance of that style in most situations
36 and below	Very strong disregard: virtual neglect of that style

TABLE 2. I_nQ Mean Scores for Secondary Majors by Teaching Field

	RANK				
	First	Second	Third	Fourth	Fifth
SOCIAL STUDIES (N=60)	Analyst 56.07	Realist 55.62	Idealist 55.00	Pragmatist 53.62	Synthesist 49.90
ENGLISH (N=33)	Realist 56.17	Analyst 53.30	Idealist 52.60	Pragmatist 51.95	Synthesist 46.87
MATH (N=21)	Realist 62.62	Analyst 59.87	Pragmatist 56.00	Idealist 51.68	Synthesist 39.87
SCIENCE (N=18)	Realist 61.82	Analyst 58.60	Idealist 54.80	Pragmatist 52.50	Synthesist 42.20

Note. Scores for foreign language majors were excluded due to a small N of 5.

Table 3. I_nQ Scores and Percentages for Social Studies Majors by QPA

	Synthesist	Idealist	Pragmatist	Analyst	Realist
High QPA (3.0-4.0) (N=28)	51.43	54.71	53.43	57.32	53.29
% Showing preference	18%	18%	14%	36%	21%
% Showing disregard	36%	18%	11%	11%	21%
Low QPA (2.0-3.0) (N=32)	48.56	5.25	53.78	54.97	57.66
% Showing preference	6%	19%	22%	31%	34%
% Showing disregard	44%	9%	22%	13%	6%

Table 4. I_nQ Mean Scores and Percentages for Social Studies Majors by Attitudes Toward Educational Practice

	Synthesist	Idealist	Pragmatist	Analyst	Realist
Progressive (N=30)					
Mean	52.89	55.71	54.43	55.32	51.63
% Showing Preference	37%	23%	17%	33%	30%
% Showing Disregard	10%	17%	23%	13%	23%
Traditional (N=30)					
Mean	48.68	53.55	54.32	55.70	55.66
% Showing preference	13%	20%	17%	28%	28%
% Showing disregard	33%	17%	20%	23%	23%